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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HAGEMAN, MARK

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/541,483	<b>Applicant(s)</b> VINCE, ANDREW	
	<b>Examiner</b> Mark Hageman	<b>Art Unit</b> 3653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,5-11,13-20 and 22-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-11,13-20 and 22-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 July 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10-7-2008, 7-6-2005</u> .                                     | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of Group 1 in the reply filed on 10/7/2008 is acknowledged.

***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the comparing means must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

3. Claim 11 is objected to because of the following informalities: volume of mass should be volume or mass. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 5-11, 13-20, and 22-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. Claims 1 and 11 discuss a ratio between either volume or mass flow rates of the dense medium and the particulate. This is unclear as it implies that it includes that ratio of a volume flow rate to a mass flow rate which does not make sense. These claims should be clarified such that either a ratio of volume flow rates or mass flow rates is claimed but not a potential volume relative to mass flow rate as the current language suggests.
7. Claim 5 recites the limitation "determining an induced value" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 5 is also indefinite as the connection to claim 1 is unclear. Claim 5 appears to attempt to further discuss the

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determining step but then also discusses the comparing and generating steps also.

Also claim 5 discusses a value and said value while claim 1 requires at least two values.

8. Claims 7-11 discuss "at least one parameter" but it is unclear how this parameter relates to claim 1. Consistent language should be used so that it is clear that the parameter is at least one of the at least two parameters that are measured.

9. Regarding claim 13, the phrase "for example" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

10. Claims 13, 14, 16, and 18 as it unclear how these claims relate to the claims from which they depend. It is unclear if steps are being added to the method or if the existing steps are being modified. It appears the claims may likely be intended to modify the deriving and comparing steps but this is not clear from the claim language.

11. Claim 20 recites a comparing means but it is not clear what structure this is. It appears from the specification that there is one processor or process means which performs all the control calculations. It is not clear how these are two separate elements.

12. Claim 20 also uses a mixture of "means for" and "\_\_\_\_\_ means for" recitations. It is not clear which if any claim limitations are meant to invoke 112/6<sup>th</sup> paragraph and thus require means plus function interpretation. Examiner requests that the applicant clarify exactly which claim elements are intended to invoke 112/6<sup>th</sup> paragraph.

13. Claims 24, 26, and 28 (similar to claims 7-11) discuss "at least one parameter" but it is unclear how this parameter relates to claim 20. Consistent language should be

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used so that it is clear that the parameter is at least one of the at least two parameters that are monitored.

14. Claim 29 is indefinite as it recites "the method according to claim 28. . ." but claim 28 is an apparatus claim.

### ***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 1, 5-7, 9, 10, 20, 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,470,901 to Burgess in view of US 6,212,943 to Maltby.

Burgess discloses supplying the particulate material and a dense medium to a medium dense separator so that the particulate material is separated by the density of the particulate material relative to the density of the dense medium (c2 lines 49+); monitoring at least two parameters related to the density of the dense medium to provide an indication of a separation value of the material, the at least two parameters selected from the group comprising (i) density of the dense medium, (ii) pressure of the dense medium and particulate material mixture, (iii) the feed rate of the dense medium and particulate material mixture, (iv) overall feed rate of a processing plant having the medium dense separator, and (v) ratio of volume or mass flow rate of dense medium to the volume or mass flow rate of the particulate material (c2 lines 52+ and c3 lines 18+);

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determining from said at least two parameters induced values indicative of the separating efficiency said separator each induced value being a measure of the density of the dense medium (c3 lines 17+); comparing said induced values with predetermined values representative of a required density of the dense medium (c3 lines 17+);

Burgess discloses using the measured values to control various valves but does not disclose generating an alarm condition if the one or more of said induced values departs from the predetermined value by a predetermined amount so the density of the dense medium can be adjusted. Maltby discloses a similar control structure that includes an alarm in order to provide notification of non-ideal system performance (c3 lines 63+ and c4 lines 40+).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have modified Burgess to include the alarm, as taught by Maltby, in order to provide notification of non-ideal system performance.

Re claim 5 Burgess discloses determining an induced value comprises determining an induced set of values indicative of the separating efficiency of the material that passed through the device, the step of comparing said value comprises comparing said set of values with a predetermined range for the set of values, and the step of generating the alarm condition comprises generating the alarm condition if the said set of values departs from the predetermined range for the set of values by a predetermined amount (c3 lines 17+).

Re claim 6 the set of values is in the form of a partition coefficient curve and parameters derived therefrom (c3 lines 22+).

Re claim 7 wherein at least one parameter which is monitored is the actual density of the medium (c3 lines 30+).

Re claim 9 at least one parameter is the feed rate of the medium and particle mixture supplied to the device (c3 lines 17+).

Re claim 10 at least one parameter is the overall processing plant feed rate (c3 lines 17+).

Re claim 20 Burgess discloses means for supplying (figure 1 and c2 lines 49+) the particulate material and a dense medium to a separator (10) so that the particulate material is separated by the density of the particulate material relative to the density of the dense medium; means for monitoring (22, 24, 26, 16,) at least two parameters related to the density of the dense medium to provide an indication of a separation value of the material; process means (20) for determining from said at least two parameters an induced values indicative of the separating efficiency said separator each induced value being a measure of the density of the dense medium; comparing means (20) for comparing said induced values with predetermined values value



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representative of a required density of the dense medium. Regarding the alarm means see claim 1 above.

Claims 22-25 recite functional limitations and intended usages of various elements but fail to provide further structural limitations to the claims. The combination of Burgess in view of Maltby is readily capable of performing the claim functionalities and therefore the claims are obvious. See MPEP 2115. Similar interpretations have been given to claims 26-29 in the relevant rejections below. Amending the claims such that the process means actively controls the devices such that the process means makes the determinations and then controls the device accordingly would likely overcome these rejections.

17. Claims 8, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess in view of Maltby as applied to claims 1, 5-7, 9, 10, 20, 22-25 above, and further in view of US 6,638,433 to Watters. Burgess in view of Maltby discloses all the limitations of the claim except at least one parameter is pressure of the medium and particle mixture which is supplied to the device. Watters discloses the use a pressure sensor as part of control system for density separator in order to maintain an appropriate level of slurry (abstract).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have modified Burgess in view of Maltby to utilize pressure as

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one of the control parameters, as taught by Watters, in order to maintain an appropriate level of slurry.

Re claims 26 and 27 see above regarding claims 22-25. Here the proposed combination is readily capable of functioning in the claimed manner.

18. Claims 11, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess in view of Maltby as applied to claims 1, 5-7, 9, 10, 20, 22-25 above, and further in view of US 6,085,912 to Hacking. Burgess in view of Maltby discloses all the limitations of the claim except at least one parameter is the ratio of volume or mass flow rate of medium to the volume of mass flow rate of the material. Hacking discloses the use of the ratio between two different materials being fed to a density separator (c3 liens 59+) in order to produce specific outputs and optimize outputs (c5 lines 30+).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have modified Burgess in view of Maltby to utilize feed ratios as one of the control parameters, as taught by Hacking, in order to produce specific outputs and optimize outputs.

Re claims 28 and 29 see above regarding claims 22-25. Here the proposed combination is readily capable of functioning in the claimed manner.

***Allowable Subject Matter***

19. Claims 13-19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

20. The following is a statement of reasons for the indication of allowable subject matter: While the prior art discusses the use of 75th and 25th percentile values in calculating and Ep value the prior art does not anticipate or render obvious the specific calculation set forth in claims 13, 14, 16, and 18. The prior art use the difference between the two values divided by 2. The prior art does not anticipate and it would not have been obvious to divide by the specific value of 2000 as claimed.

***Conclusion***

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Hageman whose telephone number is (571) 272-3027. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Mackey can be reached on (571) 272-6916. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Patrick H. Mackey/  
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MCH